

**Abstract 102 Table 1** Comparison of enzyme activity of Catalase, Superoxide Dismutase and Glutathione Peroxide in kidney, Liver, lung and spleen at 0 month, after 6 month pristane treatment and after resveratrol treatment. Values are expressed as Mean±SEM. Catalase Units:  $\mu\text{M}$  of  $\text{H}_2\text{O}_2$  decomposed per minute. Superoxide Dismutase Units: Amount of enzyme which inhibits the rate of reaction by 50% per minute. Glutathione Peroxidase:  $\mu\text{M}$  of NADPH oxidised per minute.

		Kidney	Liver	Lung	Spleen
Catalase (Units/mg protein)	0 month	38.61 ± 4.22	49.36 ± 2.26	29.38 ± 3.44	8.2 ± 0.97
	6 month pristane	31.97 ± 2.3	47.71 ± 1.24	14.31 ± 1.67	6.66 ± 0.29
	Resveratrol	29.56 ± 3.25	40.63 ± 3.2	18.81 ± 3.34	7.06 ± 0.8
Superoxide Dismutase (Units/mg protein)	0 month	19.27 ± 1.64	15.17 ± 0.8	34.67 ± 4.07	21.96 ± 0.74
	6 month pristane	14.24 ± 0.97	12.32 ± 0.7	19.68 ± 1.04	10.33 ± 1.81
	Resveratrol	16.61 ± 1.48	12.98 ± 0.19	25.71 ± 5.1	13.16 ± 1.19
Glutathione Peroxidase (Units/mg protein)	0 month	35.30 ± 3.29	28.65 ± 2.24	24.85 ± 3.95	31.34 ± 2.62
	6 month pristane	19.7 ± 3.52	15.84 ± 2.11	13.56 ± 2.67	23.99 ± 2.19
	Resveratrol	24.36 ± 3.75	15.30 ± 3.36	13.52 ± 1.86	23.03 ± 5.9

after 6 months. 25 mg/kg body weight of resveratrol was given orally after 2 months of pristane administration daily for the next 4 months.

**Results** The increased level of reactive oxygen species (Mean Fluorescence value at 0 month:  $1.70 \pm 0.22$  to  $4.89 \pm 1.37$  at 6 months) in peripheral blood mononuclear cells in the model decreased significantly after resveratrol treatment ( $1.75 \pm 0.21$ ). Pristane treatment decreased the activity of antioxidant enzymes like Catalase in lungs, Superoxide Dismutase in lungs and spleen and Glutathione peroxidase in liver and lungs. Resveratrol increased the activity of all these enzymes and a significant increase was observed in the activity of Superoxide Dismutase in lungs. Pristane treatment decreased the levels of reduced glutathione and increased lipid peroxidation in kidneys, liver, lungs and spleen. Resveratrol treatment restored reduced glutathione level and decreased lipid peroxidation.

**Conclusions** In conclusion this study states that, the consumption of resveratrol helps in better management of the disease by combating oxidative stress, the root cause of different manifestations observed in lupus.

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#### SMOKING AND PRE-EXISTING ORGAN DAMAGE REDUCE THE EFFICACY OF BELIMUMAB IN SYSTEMIC LUPUS ERYTHEMATOSUS

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**Background and aims** Belimumab is the first biologic drug approved for Systemic Lupus Erythematosus (SLE). Here, we aimed to investigate the effects of belimumab on clinical and serologic outcomes, and sought to identify predictors of treatment response in three Swedish real-life settings.

**Abstract 102 Table 2** Comparison of the levels of reduced glutathione and lipid peroxidation in Kidney, liver, lung and spleen at 0 month, 6 month pristane treatment and after resveratrol treatment. Values are expressed as Mean±SEM.

		Kidney	Liver	Lung	Spleen
Reduced Glutathione (µmoles/mg protein)	0 month	4.53 ± 0.37	5.71 ± 0.46	9.67 ± 1.35	8.83 ± 2.10
	6 month	2.23 ± 0.37	2.03 ± 0.86	3.21 ± 0.99	4.91 ± 0.91
	Resveratrol	5.13 ± 0.57	5.45 ± 0.21	5.59 ± 0.1	9.88 ± 0.46
Lipid Peroxidation (µmoles MDA/mg protein)	0 month	1.35 ± 0.17	2.34 ± 0.5	1.58 ± 0.52	1.58 ± 0.27
	6 month	7.56 ± 0.78	10.62 ± 1.08	5.01 ± 0.53	6.27 ± 0.48
	Resveratrol	2.78 ± 0.16	4.22 ± 0.53	4.29 ± 0.84	3.74 ± 0.69

**Methods** Fifty-eight patients were enrolled at initiation of belimumab and followed longitudinally for up to 53 months. Surveillance outcomes included the SLE Disease Activity Index 2000 (SLEDAI-2K), 100 mm Visual Analogue Scales for Physician's Global Assessment (PGA), fatigue, pain and general health, and the Systemic Lupus International Collaborating Clinics/American College of Rheumatology Damage Index (SDI). Assessment of treatment response included the SLE responder index (SRI). B lymphocyte stimulator (BLyS) levels were determined using ELISA.

**Results** SLEDAI-2K (median baseline score: 8.0; IQR: 4.0–13.8), PGA and corticosteroid use decreased during therapy, and patients reported improvements on fatigue, pain, and general health ( $p < 0.0001$  for all). SDI scores remained stable ( $p = 0.08$ ). Patients with baseline SDI scores  $> 1$  showed decreased probability and prolonged time to attain SRI response (HR: 0.449; 95% CI: 0.208–0.967), as did current smokers compared with non-smokers (HR: 0.103; 95% CI: 0.025–0.427). In contrast, baseline BLyS levels  $\geq 1.2$  ng/mL predicted increased probability and shorter time to attain SRI response (HR: 2.566; 95% CI: 1.222–5.387).

**Conclusions** Disease activity and corticosteroid usage decreased, patient-reported outcomes improved, and no significant organ damage was accrued during follow-up. Smoking and organ damage predicted reduced treatment efficacy. These findings might contribute to a better selection of patients who are likely to benefit from belimumab.

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#### A MASS CYTOMETRY (CYTOF) APPROACH TO STUDY B CELL ALTERATIONS DURING BAFF BLOCKADE TREATMENT WITH BELIMUMAB IN SYSTEMIC LUPUS ERYTHEMATOSUS

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**Background and aims** Belimumab is a monoclonal antibody that inhibits soluble B lymphocyte stimulator (BLyS, also known as BAFF), approved for the treatment of systemic lupus erythematosus (SLE). Here, we sought to identify B cell alterations during belimumab treatment.

**Methods** Twenty-three SLE patients treated with belimumab were enrolled. Peripheral blood mononuclear cells were collected and cryopreserved at treatment initiation and at regular follow-up visits for up to 3 years. The samples were simultaneously assayed using mass cytometry. Cell counts were adjusted for total lymphocyte counts.

**Results** CD20<sup>+</sup> B cells decreased over time ( $p < 0.0001$ ). We observed a rapid reduction of naïve (CD19<sup>+</sup>CD20<sup>+</sup>IgD<sup>+</sup>IgM<sup>+</sup>CD27<sup>-</sup>) and age-associated B cells (CD19<sup>+</sup>CD20<sup>+</sup>CD11c<sup>+</sup>CD21<sup>-</sup>) already at the first follow-up visit (month 3), followed by a continuous decrease ( $p < 0.0001$  for both subsets), while double-negative memory B cells